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PATENT & TRADEMARK OFFICE

FIG.1

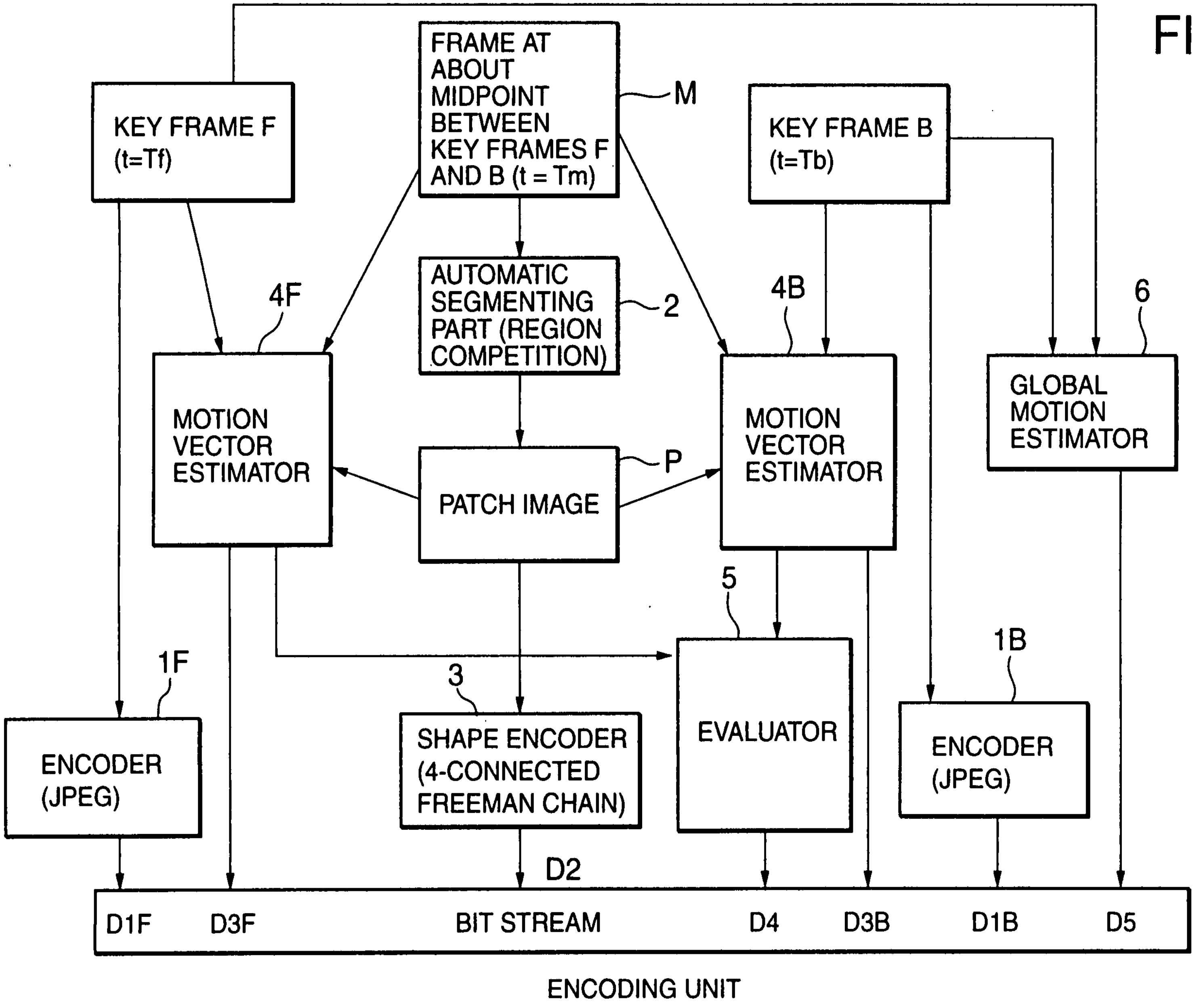


FIG.2

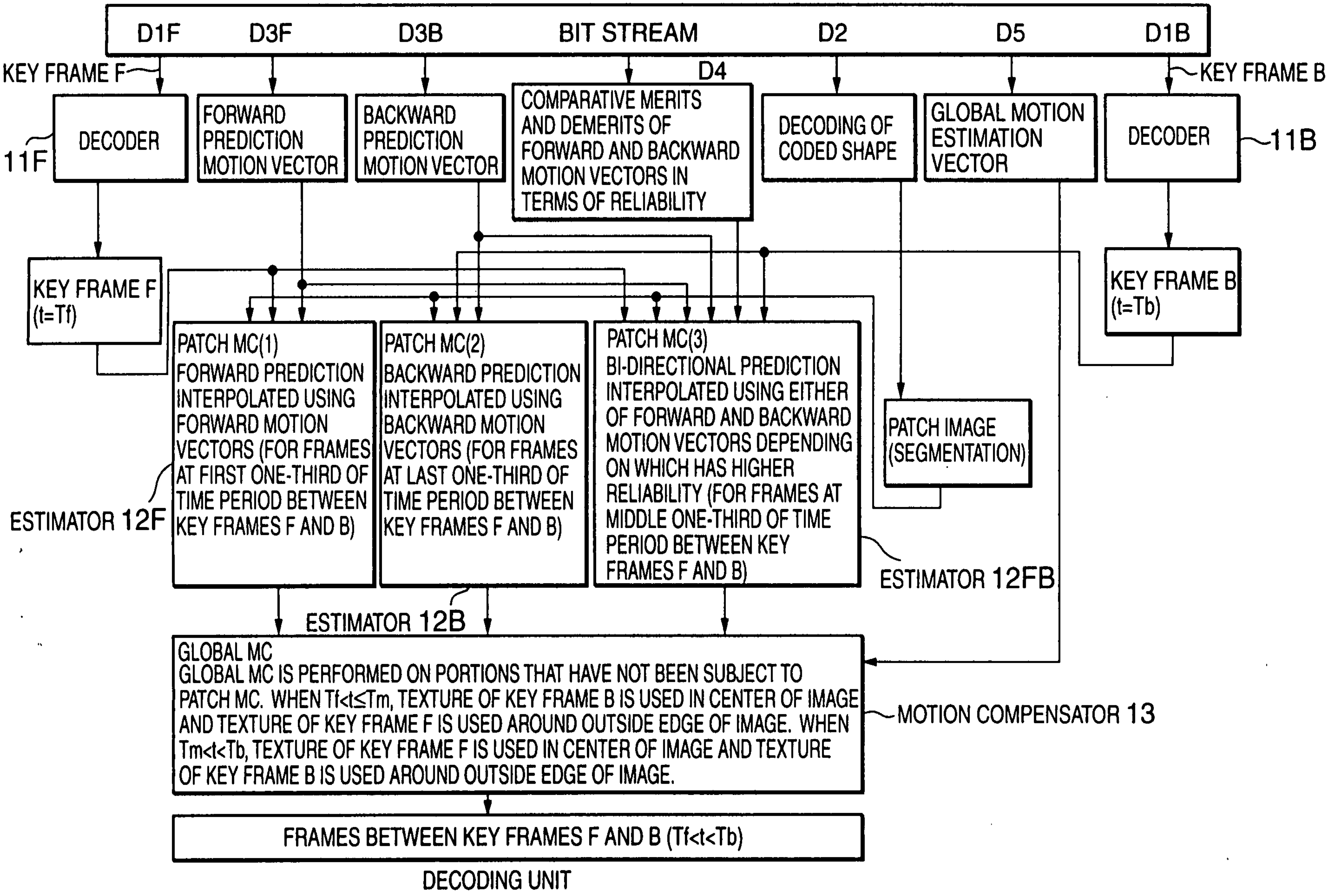
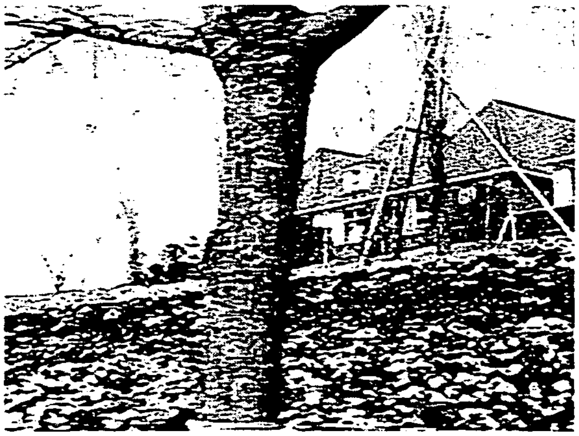
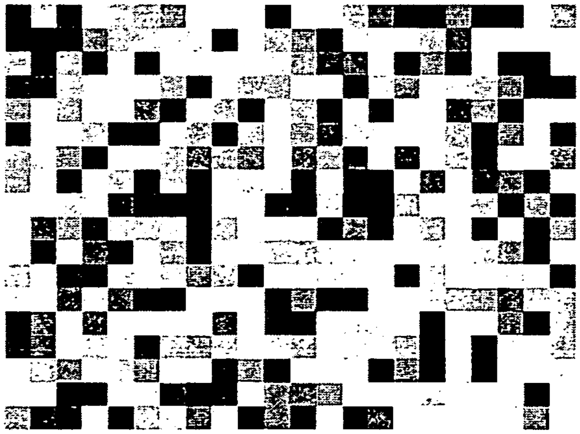

BIT STREAM
D1F
D3F
D3B
D2
D5
D1B
D4
KEY FRAME F
KEY FRAME B
11F
DECODER
FORWARD PREDICTION MOTION VECTOR
BACKWARD PREDICTION MOTION VECTOR
COMPARATIVE MERITS AND DEMERITS OF FORWARD AND BACKWARD MOTION VECTORS IN TERMS OF RELIABILITY
DECODING OF CODED SHAPE
GLOBAL MOTION ESTIMATION VECTOR
DECODER
11B
KEY FRAME F (t=Tf)
KEY FRAME B (t=Tb)
PATCH MC(1) FORWARD PREDICTION INTERPOLATED USING FORWARD MOTION VECTORS (FOR FRAMES AT FIRST ONE-THIRD OF TIME PERIOD BETWEEN KEY FRAMES F AND B)
PATCH MC(2) BACKWARD PREDICTION INTERPOLATED USING BACKWARD MOTION VECTORS (FOR FRAMES AT LAST ONE-THIRD OF TIME PERIOD BETWEEN KEY FRAMES F AND B)
PATCH MC(3) BI-DIRECTIONAL PREDICTION INTERPOLATED USING EITHER OF FORWARD AND BACKWARD MOTION VECTORS DEPENDING ON WHICH HAS HIGHER RELIABILITY (FOR FRAMES AT MIDDLE ONE-THIRD OF TIME PERIOD BETWEEN KEY FRAMES F AND B)
PATCH IMAGE (SEGMENTATION)
ESTIMATOR 12F
ESTIMATOR 12B
ESTIMATOR 12FB
GLOBAL MC
GLOBAL MC IS PERFORMED ON PORTIONS THAT HAVE NOT BEEN SUBJECT TO PATCH MC. WHEN Tf<t≤Tm, TEXTURE OF KEY FRAME B IS USED IN CENTER OF IMAGE AND TEXTURE OF KEY FRAME F IS USED AROUND OUTSIDE EDGE OF IMAGE. WHEN Tm<t<Tb, TEXTURE OF KEY FRAME F IS USED IN CENTER OF IMAGE AND TEXTURE OF KEY FRAME B IS USED AROUND OUTSIDE EDGE OF IMAGE.
MOTION COMPENSATOR 13
FRAMES BETWEEN KEY FRAMES F AND B (Tf<t<Tb)
DECODING UNIT

FIG. 3



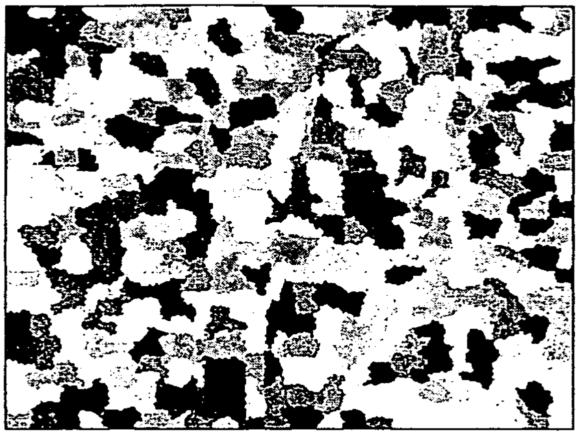
MIDDLE FRAME

FIG. 4



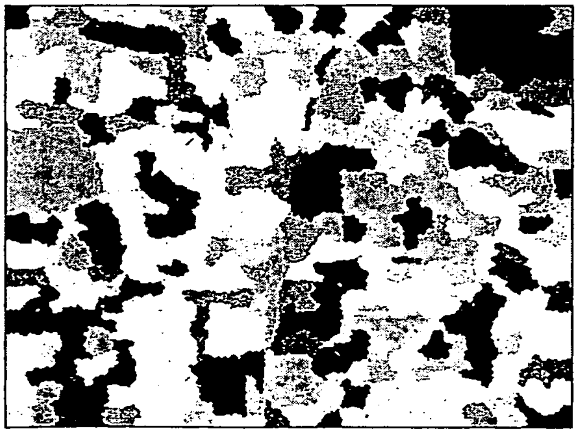
"SEEDS" FOR REGION COMPETITION

FIG. 5



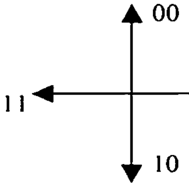
AFTER 20 ITERATIONS OF GROWING AND COMPETITION

FIG. 6



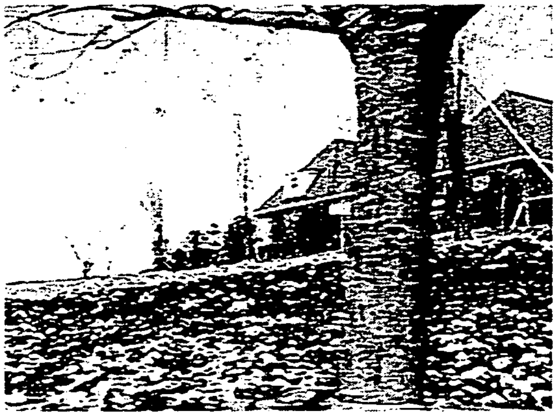
AFTER MERGING

FIG. 7



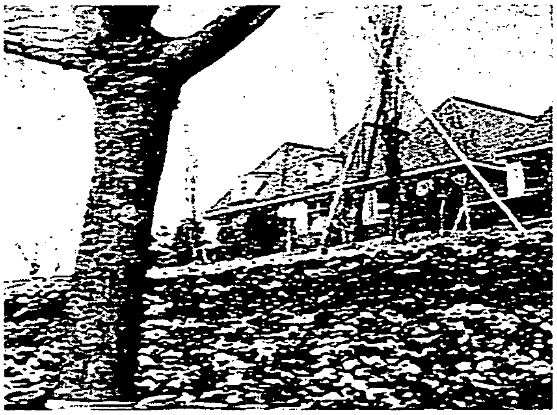
4-CONNECTED FREEMAN CHAIN

FIG. 8



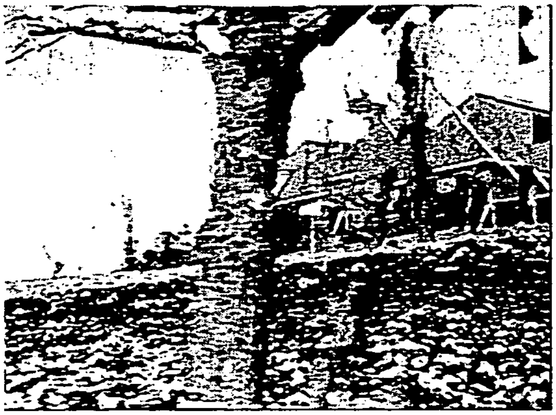
KEY FRAME F

FIG. 9



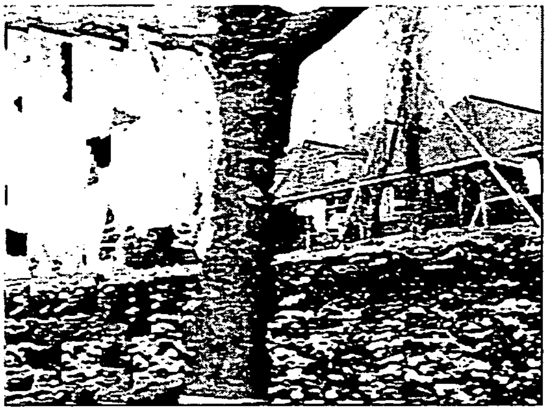
KEY FRAME B

FIG. 10



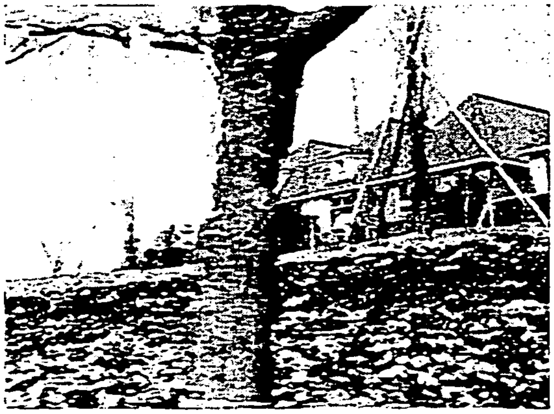
FORWARD PREDICTED IMAGE
IN THE MIDDLE FRAME

FIG. 11



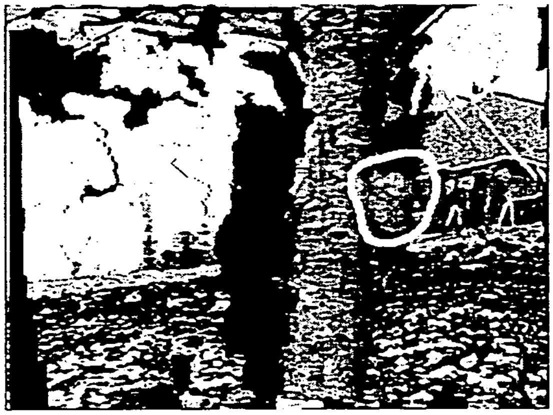
BACKWARD PREDICTED
IMAGE IN THE MIDDLE FRAME

FIG. 12



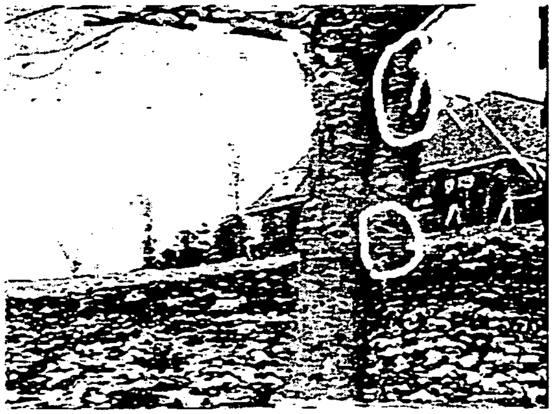
BI-DIRECTIONAL PREDICTED
IMAGE IN THE MIDDLE FRAME

FIG. 13



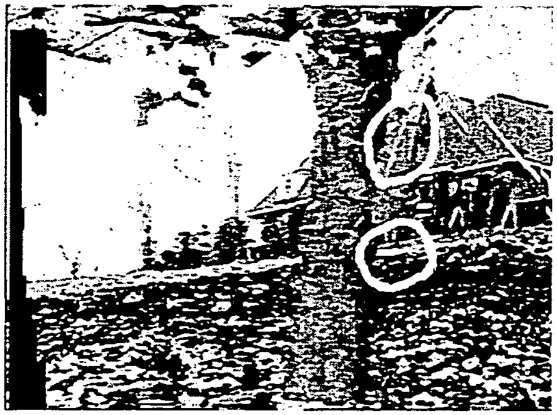
PATCH MOTION
COMPENSATION ONLY

FIG. 14



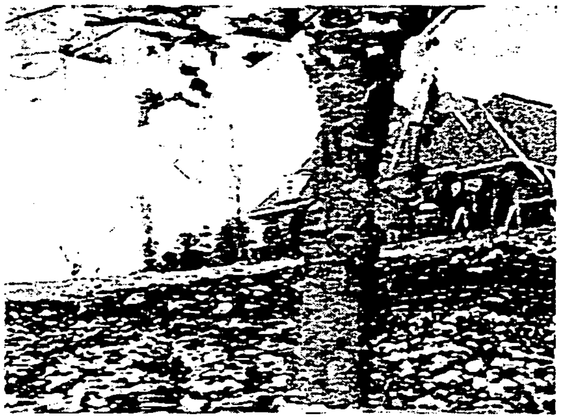
GLOBAL COMPENSATION BASED
ON THE PREVIOUS KEY FRAME F

FIG. 15



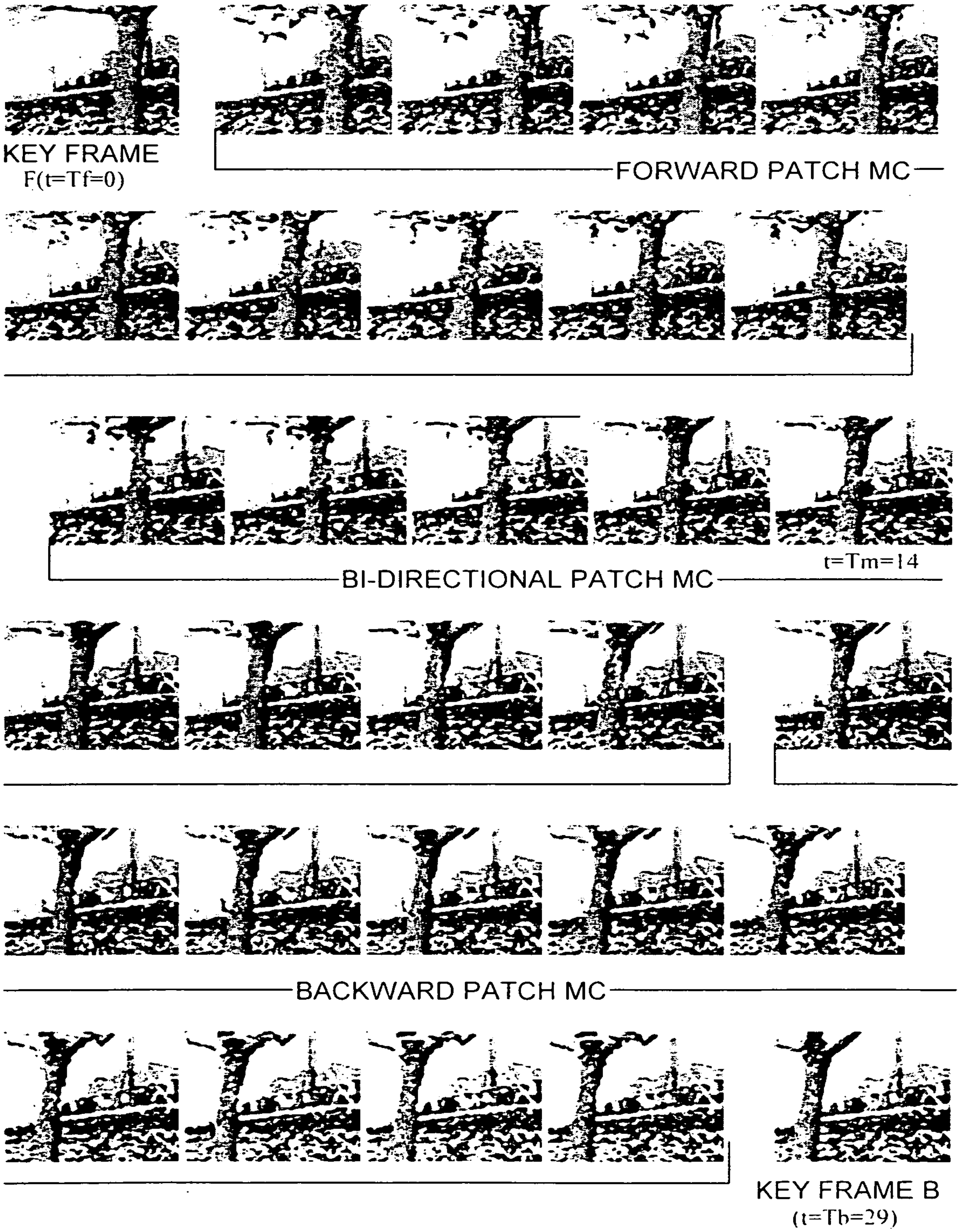
GLOBAL COMPENSATION BASED ON THE SUCCEEDING KEY FRAME B

FIG. 16



PRESENT INVENTION

FIG. 17



RESULT OF ENCODING